monitor 10 and subsequently present the GAP level on the display 314 of figure 6a or 320 of figure 6b. Process 352 puts the user display 30 into appliance load measuring mode. With the user display 30 in measuring mode, the user plugs an appliance into the user display outlet and activates the appliance. The user display 30 measures the appliance load and displays the load level on the display in step 353. For the case of a user display 30 like that of Figure 6a, the load measured is rounded up to the next higher light indicating the load level just above the measured appliance load. The user then writes in the name of the appliance next to the highest light lit by the appliance load measurement. For a user display 30 like that in Figure 6b, the load can be displayed at the thermometer level equal to the measured load and the user is then prompted in step 354 to input the name or select an icon to represent the appliance that has just been measured. The name or icon then remains next to the measured load level.

At steps 356 and 355, in Figure 7a, the generator is supplying power. The generator monitor 10 is transmitting the GAP levels. The user displays are receiving their designated GAP levels in step 356. The user display 30 adjusts the GAP level displayed to the user at step 357. For user displays like that in Figure 6b, the recorded appliance names or icons are updated in step 358 of Figure 7a to indicate/emphasize whether or not the generator can support the appliance at its current load. Once the user display 30 has been updated at step 358 the process returns to step 355 to receive the next GAP level transmission in step 356 from the generator monitor 10 and repeat the process through steps 357 and step 358.

The flow diagram to the right of Figure 7a "Interrupt Switch Status Monitoring" is for the process of displaying the open or closed status for the interrupt switches in the system. This is an optional feature that appears in the user display 30 at the top third of the screen in Figure 6b. This interrupt switch 20 status reporting process starts with assigning a more familiar name to the names of "Switch ID #1", "Switch ID #2", etc. in step 361. At installation, the user replaces the generic Switch ID #_ references with the appliance names being supported by the particular interrupt switch. Figure 6b shows a display where "Switch ID #1" has been replaced by "Well Pump", "Switch ID #2" has been

replaced by "Refrigerator", "Switch ID #3" has been replaced by "Sump Pump" and "Switch ID #4" has been replaced by "Oil Burner". Switch ID #s 5 thru 8 are either not installed in this system, or have not been given appliance names. Also in step 361 the critical disable time period is set for each interrupt switch ID #. At 362 the Interrupt time period is set equal to zero and the system clock begins recording the Interrupt time when GAP levels are first detected. Note when the power first returns from the backup generating source, the interrupt switches first open their switch, interrupting power and disabling their appliances. Therefore the initial time period that an appliance has been disabled starts at the very first GAP transmission.

The critical disable time is the time period the user determines is the longest time period the appliance can be disabled, or without power. The user can decide to use one average time period considered adequate for all appliances, or a specific time period appropriate for each appliance. The user may consider 40 minutes as critical for the oil burner to be without power and 30 minutes as critical for the refrigerator. Whatever the user preference, the user display 30 monitors the interrupt switch 20 signals, measures the time each is in disable mode and compares this time period to the critical time. When the time disabled exceeds the critical time, the user display 30 activates one or more audible or visual warnings to the user.

At step 363 of Figure 7a, the user display 30 receives the Switch Open or Switch Closed transmissions from the interrupt switches in step 360. The control system continues to step 366 and identifies the Switch ID # from which an Open or Closed status has been received. For a Switch ID Open status, the process follows path 365 to step 367 where the indicator light for the Switch ID # is either turned "ON", or kept "ON", indicating to the user that the appliance supported by the interrupt switch 20 is without power and therefore disabled. The control system determines if the interrupt time is greater than the set critical disable in step 368 and if this critical disable time period has been exceeded, the process follows path 369, the indicator light changes its appearance (flash, change color, etc.) in step 371, to indicate to the user that the appliance supported by the interrupt switch 20 has been without power for a period longer than the critical time period. After

step 371, or if the interrupt time is less than critical in the prior process step 368, the control system returns to step 363 to receive the next status transmission in step 360 from the interrupt switch 20 and repeat the cycle.

When a Switch ID Closed status occurs at step 366, the process follows path 364 to step 376 where the light or indicator for the Switch ID # on the user display 30 is turned "OFF" indicating to the user that the power has either been returned, or is still available to the appliance and the appliance is enabled. Process step 376 also sets the interrupt time to zero as power has been returned to the appliance.

Figure 6c is a simple and inexpensive embodiment of the present invention for the user display 30, in that it reports the GAP level as being above or below one set level with a single on/off indicator 350. This GAP level can be one power level that is relevant to most appliances local to the user display 30 or the load capability of the circuit in which it is plugged. The power level is either set by the manufacturer or set by the user with a dial (not shown).

Although Figures 6a, 6b and 6c depict user displays that plug into standard outlets, the present invention also includes alternate configurations of user displays with the same range of functionality, but built into or permanently integrated into wall outlets.

In its more user-friendly design, the user display 30 presents one GAP level to the user. More sophisticated embodiments of the present invention can present any or all transmitted GAP levels in a variety of numeric or graphical forms. However, presenting one GAP level, with a straightforward presentation of Yes or No for each local appliance, is the most efficient for the average user. This presentation of a single GAP level leads to the question of which GAP level should be translated into the display's light level, thermometer icon or other GAP level presentation. This question is addressed in part by the GAP level or "generator level" setting on the user display in figure 6a. The question is further addressed by determining whether the surge or continuous GAP level should be monitored. A conservative approach, is to monitor the GAPC, or GAP continuous